

Cervus, *Lepus*, *Arvicola*, *Mus*, *Ursus spelæus*, *U. priscus*(?), *Felis spelæa*, *Hyæna spelæa*, *Canis lupus*, *C. vulpes*, *Meles taxus*, and *Mustela*. Coprolites of *Hyæna*, gnawed bones of *Bos*, *Equus*, and *Cervus*, and a great abundance of the detached molars of Horse, gave the cave the undoubted character of having been a Hyæna's den. In the superficial sand on the stalagmite, the antlers of a Reindeer and some human bones were found.

General remarks on the distribution of the Mammalian remains in the different caverns were offered, and the special anomalies pointed out; and, after a comparative review of the fauna of the Gower bone-caves in relation to that of other cave-districts of England in particular, and of Europe in general, the author arrived at the following conclusions as being consistent with the existing state of our knowledge:—

1. That the Gower Caves have probably been filled up with their mammalian remains since the deposition of the Boulder-clay.

2. That there are no mammalian remains found elsewhere in the ossiferous caves in England and Wales referable to a fauna of a more ancient geological date.

3. That *Elephas (Loxodon) meridionalis* and *Rhinoceros Etruscus*, which occur in, and are characteristic of, the "Submarine forest Bed" that immediately underlies the Boulder-clay on the Norfolk coast, have nowhere been met with in the British caverns.

4. That *Elephas antiquus* with *Rhinoceros hemitæchus*, and *E. primigenius* with *Rh. tichorhinus*, though respectively characterizing the earlier and later portions of one period, were probably contemporary animals; and that they certainly were companions of the Cave-Bears, Cave-Lions, Cave-Hyænas, &c., and of some at least of the existing mammalia.

ZOOLOGICAL SOCIETY.

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DESCRIPTIONS OF TWENTY-TWO NEW SPECIES OF HUMMING-BIRDS. BY JOHN GOULD, F.R.S., ETC.

As my work on the *Trochilidæ* is now fast drawing to a close, I have examined with care and minute detail my entire collection of this great and important family of birds, and I find therein more than twenty species, which, I believe, have not yet received specific appellations. Many of these I have had by me for years, while others have been more recently acquired. Of the specific value of those described in the following pages I am perfectly satisfied; but in case any doubt should be entertained on the subject, my collection is, and will be, at all times accessible for their elucidation.

GRYPUS SPIXI, Gould.

Crown of the head bronzy-brown; upper surface and all the tail-feathers very rich reddish-bronze; wings reddish purple-brown; line above the eye buff; ear-coverts dark-brown; throat, chest and under surface deep reddish-buff; under tail-coverts bronzy, each slightly

tipped with buffy-white; upper mandible black; under mandible yellow, with a black tip; feet yellow.

Total length $4\frac{7}{8}$ inches; bill $1\frac{1}{2}$; wing $2\frac{3}{4}$; tail $1\frac{3}{4}$.

Hab. Supposed to be Brazil.

Remark.—This bird is considerably smaller than *G. nævius*, and has a less cuneate tail. It is possible that this may be one of the sexes of *Glaucis Dohrni*; many of its colours would induce such a belief; and if such should prove to be the case, that bird must be removed from the genus *Glaucis* to that of *Grypus*. I have named this bird in honour of the celebrated traveller Spix, in whose work there occurs a figure of a bird (*G. ruficollis*) which somewhat resembles my specimen: not so, however, the accompanying description, which appears to be that of the species so frequently sent from Rio de Janeiro, and which is generally known as *Grypus nævius*.

GLAUCIS MELANURA, Gould.

Centre of the throat, chest, and under surface buff; a streak of dark brown passes downwards from the base of the lower mandible, between which and the ear-coverts is a stripe of buff; there is also a line of buff behind the eye; crown of the head brown; back of the neck, upper surface, and two middle tail-feathers golden-green; upper tail-coverts narrowly edged with grey; basal portion of the inner webs and the shafts of the four lateral tail-feathers rich reddish-buff approaching to chestnut, the remainder of these feathers being black, tipped with white; bill black, except the base of the under mandible, which is yellow.

Total length $4\frac{1}{4}$ inches; bill $1\frac{1}{2}$; wing $1\frac{1}{4}$; tail $2\frac{1}{4}$.

Remark.—This species is much smaller than the *G. hirsuta* of Trinidad and the eastern coast of America. It has also a much greater amount of black colour in its tail; this organ, in fact, when closed and viewed from beneath, appears to be entirely black, the under coverts concealing the buff colouring at its base. I possess two specimens of this bird, one of which, a very fine one, was received from the upper Rio Negro, the other from the Napo.

PHAËTHORNIS ZONURA, Gould.

Crown of the head brown; back of the neck, back, and shoulders bronzy-green; rump and upper tail-coverts rich reddish-buff; all the under surface buff, palest on the throat; three outer tail-feathers on each side black at the base, with rich buffy tips; the fourth feather the same except at the tip, where the outer half is buff and the inner half white; the two central prolonged feathers black at the base, largely tipped with white; bill black, except the basal half of the lower mandible, which is either yellow or flesh-colour; feet yellow.

Total length $3\frac{3}{4}$ inches; bill 1; wing $1\frac{3}{4}$; tail $1\frac{5}{8}$.

Hab. Peru, where it was procured by M. Warszewicz.

Remark.—This is a fine and very distinct species; it is perhaps most nearly allied to *P. griseogularis*; it is, however, a much larger bird, and has its tail much more strongly marked. In fact, the tail must show very conspicuously when outspread, from the strong contrast which the black basal portion offers to the buff tips and the rich

rufous colouring of the rump and upper tail-coverts. It belongs to that section of the genus *Phaëthornis* to which Prince Bonaparte has given the subgeneric name of *Pygmornis*.

AUGASMA SMARAGDINEUM, Gould.

Crown of the head and throat glittering greenish-blue, imperceptibly passing into the glittering green at the breast; back of the neck and upper surface golden-green; upper tail-coverts grass-green; under tail-coverts green inclining to purple on some of the feathers; thighs brown; tail bluish-black, the two outer feathers on each side slightly tipped with white; bill black, with the exception of the basal half of the under mandible, which is flesh-colour.

Total length $3\frac{3}{4}$ inches; bill $\frac{7}{8}$; wing $2\frac{1}{8}$; tail $1\frac{3}{8}$.

Hab. Brazil.

Remark.—This bird is about the size of *Thalurania furcata*; it is therefore a rather large species; it is also an elegantly formed bird. Those who are acquainted with the *T. chlorocephala* of M. Bourcier will find in this a very near ally; I have not the least doubt, however, of its being quite distinct. The only examples I have seen are one in my own collection, and another in that of M. Verreaux of Paris. In M. Verreaux's specimen the white tipplings of the outer tail-feathers are nearly obsolete, while in mine they are conspicuous; in my specimen, also, the two middle tail-feathers are marked with green on their upper surface, while in M. Verreaux's these feathers are uniform in colour throughout. My bird was kindly sent to me by T. Reeves, Esq., of Rio de Janeiro.

EUCEPHALA CÆRULEO-LAVATA, Gould.

Crown of the head greenish-blue, not very brilliant, but having a few conspicuous small bright-blue feathers intermingled; throat and chest bright greenish-blue, passing into purer green on the flanks; back of the neck, and back, deep grass-green; wings purplish brown; upper tail-coverts bronzy-orange; under tail-coverts bronzy purplish brown; two middle tail-feathers deep purplish bronze; the next on each side is washed with bronze on its outer margin; the remaining feathers purplish-black; thighs greyish-white; the bill appears to have been reddish flesh-colour at the base of both mandibles (this colour also pervades nearly the whole of the under mandible); the remainder of the bill black.

Total length $3\frac{3}{4}$ inches; bill $\frac{7}{8}$; wing $2\frac{1}{4}$; tail $1\frac{1}{2}$.

Hab. St. Paulo in Southern Brazil.

Remark.—I am indebted to T. Reeves, Esq., of Rio de Janeiro, for a fine specimen of this new bird, which differs so widely from every other known species, that I am unable to compare it with any one of them. It is a stout and rather large bird, with a well-proportioned bill and tail, the latter of which is considerably forked.

I am not quite satisfied that a place in the genus *Eucephala* is the proper position for this bird among the *Trochilidæ*, and I feel that I might, without overstepping the bounds of propriety, have constituted it the type of a new genus.

EUCEPHALA HYPOCYANEA, Gould.

Crown of the head, back of the neck, back and flanks somewhat dull-green; throat and chest brilliant blue, passing into glittering green on the centre of the abdomen; wings purplish-brown; upper tail-coverts reddish-bronze; under tail-coverts brownish-black, with bronzy tips; tail steel-black; thighs brown; upper mandible black; basal two-thirds of the under mandible flesh-colour, the apical third black.

Total length $3\frac{1}{4}$ inches; bill $\frac{3}{4}$; wing 2; tail $1\frac{3}{8}$.

Hab. Said to be Bahia in Brazil.

Remark.—This is a rather small, but distinctly marked species, unallied to any other bird. Lesson's Plate 49 of his 'Histoire Naturelle des Oiseaux-mouches,' appears to have been taken from a bird of this kind; but the term *bicolor* cannot for a moment be entertained.

ERYTHRONOTA? ELEGANS, Gould.

Crown and all the under surface of the body glittering light-green; back of the neck and back golden- or orange-green; upper tail-coverts purplish-red or puce-colour; tail long, forked, and of a purplish violet-hue with green reflexions on the tips of the two centre feathers; wings purplish brown; tarsi white; under tail-coverts grey with bronzy-purple centres; upper mandible flesh-colour at the base, and black for the remainder of its length; under mandible flesh-colour, except at the tip, which is black.

Total length $3\frac{1}{8}$ inches; bill $1\frac{1}{2}$; wing $2\frac{1}{8}$; tail $\frac{7}{8}$.

Hab. Unknown.

Remark.—It is easier to assign a specific name to a bird than to determine to which generic form it is referable; and if there be any bird which is a puzzle to the ornithologist, this is one. It is a very elegant species, and quite distinct from every other known Humming-Bird: in its glittering light-green crown, throat, and chest it looks like a *Chlorostilbon*; but the form of its tail and some other characters ally it to the *Erythronotæ*, with which I have provisionally placed it.

THAUMATIAS VIRIDICEPS, Gould.

Crown of the head, nape, and sides of the neck glittering light green; back and shoulders bronzy-green; throat and abdomen pure white; flanks white, faintly spotted with yellowish-green; under tail-coverts white; the rather short and narrow tail-feathers purplish-grey, with an obscure band of purplish-brown near the tip of the three outer ones on each side; upper mandible black; under mandible yellowish, except at the extreme tip, which is black.

Total length 4 inches; bill $\frac{9}{16}$; wing $2\frac{1}{8}$; tail $1\frac{3}{8}$.

Hab. Ecuador.

Remark.—Of this somewhat remarkable species I have two specimens, which appear to be male and female. It is a robust bird, being almost as stout in its bill, head, and body as the members of the genus *Cyanomyia*, while its tail is short and the feathers narrow, as in *Thaumatias leucogaster* and *T. chionopectus*.

THAUMATIAS CÆRULEICEPS, Gould.

Crown of the head and back of the neck deep shining greenish-blue; back and shoulders green, passing into bronzy-green on the rump and upper tail-coverts; tail nearly uniform bronze, with a very faint indication of a zone of brown across the outer feathers near the tip; wings purplish brown; sides of the neck glittering bluish-green, the blue tint predominating on the ear and immediately under the eye; centre of the throat and chest broken glittering green and white; flanks bronzy-green; under tail-coverts grey, with brown centres; upper mandible dark brown; under mandible appears to have been yellow, except at the tip, which is dark brown.

Total length $3\frac{1}{2}$ inches; bill $\frac{1\frac{5}{8}}$; wing $2\frac{1}{8}$; tail $\frac{1}{2}$.

Hab. Bogota.

Remark.—This species, which is somewhat allied to the *T. Milleri*, differs from that, as well as from every other known member of its genus, by the blue colouring of its crown.

THAUMATIAS NITIDIFRONS, Gould.

Crown of the head, face, chest, and breast glittering green; abdomen and flanks golden green; back, shoulders, and rump bronzy-green; tail pale bronzy greyish-green, with a zone of purplish-brown crossing the four lateral feathers on each side near their tips; under tail-coverts grey, with a patch of bronzy-green in the centre of each; tarsi greyish-brown; upper mandible black; under mandible yellow, black at the tip.

Total length $3\frac{1}{4}$ inches; bill $\frac{3}{4}$; wing $1\frac{7}{8}$.

Hab. Unknown.

Remark.—Nearly allied to the *T. brevirostris* and *T. Milleri*, but differing from both in the glittering green of the face and crown, and in the centre of the breast being covered with the same shining colour. The specimen described was presented to me by G. N. Lawrence, Esq., when I visited New York in 1858.

CHLOROSTILBON MELANORHYNCHUS, Gould.

Bill black; crown of the head and the entire under surface glittering golden-green, the golden hue being most conspicuous on the crown; the back of the neck and upper surface are also golden-green, but less brilliant; wings purplish-brown; the short and slightly forked tail is greenish or steel-blue; thighs brown; anal region, and a small tuft springing from each side of the body, white.

Total length $3\frac{3}{8}$ inches; bill $\frac{3}{4}$; wing 2; tail $1\frac{1}{8}$.

Hab. The neighbourhood of Quito in Ecuador.

Remark.—Differs from *C. chrysogaster* in its black bill, its shorter and less forked tail, and in its being a stouter or more robust bird.

CHLOROSTILBON ACUTICAUDUS, Gould.

Crown and all the under surface glittering green, the green assuming a golden hue on the crown; back, all the upper surface, and tail rich golden-green; wings purplish-brown; bill black.

Total length 3 inches; bill $\frac{3}{4}$; wing $1\frac{5}{8}$; tail 1.

Hab. Antioqua in Columbia.

Remark.—This very distinct species is allied both to *Chlorostilbon Portmanni* and *C. Aliciæ*; but it differs from the former in the greater length of its bill, and from the latter in the greater length of its tail-feathers. In the present species, the outer tail-feather on each side is prolonged nearly an eighth of an inch beyond the next, which again is a little prolonged beyond the centre feathers. When the tail is closed, the two outer feathers join at the tip, and form a sharp point; in the two species with which I have compared it, the tail is more truncate.

CHLOROSTILBON OSBERTI, Gould.

Crown of the head glittering golden-green; throat and all the under surface glittering grass-green; wing purplish-black; tail black, the six centre feathers terminated with a mark of brown, which is more conspicuous in some specimens than in others; in some also the two central feathers are tipped with green; bill coral-red at the base, black at the tip.

Total length $2\frac{7}{8}$ inches; bill $\frac{1}{2}$; wing $1\frac{3}{4}$; tail $1\frac{1}{4}$.

Hab. Guatemala.

Remark.—This species, which I have named after Mr. Osbert Salvin, and which is an inhabitant of the neighbourhood of Dueñas and some other parts of Guatemala, has been a great puzzle to me, as it must be to every Trochilidist who studies the little green Humming-Birds to which the generic name of *Chlorostilbon* has been applied. It is, in fact, a diminutive *C. Caniveti*, but too diminutive to be regarded in any other light than in that of a species.

In naming this bird after Mr. Osbert Salvin, I feel that a finer species might have been more appropriately dedicated to him; for there is no person of his youthful age who has exerted himself so praiseworthy or so successfully in collecting facts and specimens of ornithology. Mr. Salvin has already traversed a great part of the country of Central America, and has also paid a hurried visit to North Africa, and collected in both countries an immense mass of materials in every department of zoology, which he has liberally placed at the disposal of those who have devoted themselves to the several departments to which they pertain.

CALOTHORAX DECORATUS, Gould.

Male.—Crown of the head, all the upper surface and flanks deep grass-green; throat and sides of the neck very lovely shining lilac; chest grey; wings and tail purplish-brown; bill black.

Total length 3 inches; bill $\frac{5}{4}$; wing $1\frac{2}{8}$; tail $\frac{1}{8}$.

Hab. Supposed to be Antioqua in Columbia.

Remark.—This species might easily be mistaken for *Calothorax Heliodori*; but although closely allied to that species, it differs from it in several particulars—in being much larger, in having the frill in front of the throat not so prolonged at the sides (in which respect it more nearly resembles *C. Mulsanti*), the two centre tail-feathers finer or more spiny, and the bill much longer. These comparisons have been made with fine specimens in my collection of all three species.

AMAZILIA ALTICOLA, Gould.

Crown of the head and nape of the neck dark brown, with very slight reflexions of golden-green; back of the neck, back, and rump golden- or orange-green; upper part of the throat, cheeks, and sides of the neck light golden-green; lower part of the throat, chest, centre of the abdomen, thighs, and the thickly clothed tarsi pure white; flanks rich bright buff; under tail-coverts white, washed with buff; tail rich deep reddish-buff, the two centre feathers washed with bronzy-grey, and the four outer ones, on each side, washed on their outer edges with bronzy-green; wings purplish-brown; bill black at the tip, the remainder white or flesh-colour.

Total length 4 inches; bill $1\frac{5}{8}$; wing $2\frac{5}{8}$; tail $1\frac{5}{8}$.

Hab. Said to be the Puna district of Peru.

Remark.—In its general style of colouring, this bird is very similar to *Amazilia leucophaea*, but, compared with that species, is a giant in size; it has also less of the glittering golden-green on the cheeks and sides of the neck.

I am indebted to M. Bourcier for permission to describe this species.

PHLOGOPHILUS HEMILEUCURUS, Gould.

Crown of the head brownish-green; back of the neck, upper surface, two middle tail-feathers, and the flanks grass-green; sides of the face and ear-coverts greenish-brown; centre of the throat, chest, middle of the abdomen, and under tail-coverts white; tail rounded; the four lateral feathers on each side white with an oblique band of black or blackish-purple occupying the centre of each, this band of black extending along the margin of the two outer feathers to the tip, so that the inner web only is white; not so on the next, which is terminated with a large spot or tip of white; upper mandible black; under mandible flesh-colour; feet yellow.

Total length $3\frac{1}{2}$ inches; bill $\frac{3}{4}$; wing $2\frac{1}{8}$; tail $1\frac{1}{2}$.

Hab. The borders of the Rio Napo.

Remark.—I have no doubt that the bird from which the above description was taken is immature; when the adult is discovered, it will probably be found to be a very remarkable species; in fact, the specimen described exhibits characters differing from those of every other known Humming-bird, among which its singularly-marked, rounded tail is especially noticeable.

CALLIPHLOX ? IRIDESCENS, Gould.

The whole of the body, including the upper and under tail-coverts, iridescent, pale green and light coppery-red, most brilliant on the throat; the deeply forked tail steely dark-brown, each feather tipped with a more bronzy or purplish hue, which is seen only in certain lights; upper mandible and the tip of the lower one black, the remainder of the latter apparently reddish flesh-colour.

Total length $3\frac{1}{4}$ inches; bill $\frac{3}{4}$; wing $1\frac{9}{16}$; tail $1\frac{1}{4}$.

Hab. Rio de Janeiro.

Remark.—If, as I believe, I am right in referring this little bird

to the genus *Calliphlox*, it is one of the most remarkable Humming-birds that it has fallen to my lot to describe. In its size and form it is very similar to *C. amethystina*, but in colouring it is like a *Chlorostilbon*. The only specimen I have seen was sent to me by T. Reeves, Esq., of Rio de Janeiro.

APHANTOCHROA? GULARIS, Gould.

Crown shining grass-green; back of the neck, shoulders, back, upper tail-coverts, and two centre tail-feathers deep grass-green; under surface of the body grass-green, with the exception of a glittering patch of lilac on the throat, and the centre of the abdomen, the thighs, and under tail-coverts, which are white; primaries purplish-brown; four outer tail-feathers, on each side, purplish-green; bill slightly curved and black, with the exception of the base of the under mandible, which appears to have been flesh-colour.

Total length $4\frac{1}{4}$ inches; bill $1\frac{1}{8}$; wing $2\frac{3}{8}$; tail $1\frac{1}{4}$.

Hab. My specimens were procured on the banks of the Rio Napo.

Remark.—In the general style of its colouring, and in the shortness and similar colouring of its tail, this bird approaches more nearly to *Aphantochroa cirrhochloris* than to any other species; but it differs from that bird in having a much longer bill, and a bright metallic deep-lilac patch on the throat, similar to that observed in *Phaiolaima rubinoides*; and in having white under tail-coverts. In size it is somewhat smaller.

ERIOCNEMIS SQUAMATA, Gould.

Crown of the head, back of the neck, upper surface, sides of the neck, and flanks coppery-bronze, inclining to green on the back and to rust-colour on the upper tail-coverts; throat, chest, and centre of the abdomen hoary grey with green and coppery reflexions; in certain lights the feathers of the throat and chest appear to be edged with grey, giving those parts a scaled appearance—hence the specific name; under tail-coverts smoky-grey; anterior portion of the feathers clothing the tarsi white, the posterior portion buff; tail dull steel-black; wings purplish-brown; bill black.

Total length $4\frac{3}{4}$ inches; bill $\frac{7}{8}$; wing $2\frac{5}{8}$; tail $1\frac{7}{8}$.

Hab. Ecuador.

Remark.—This bird is nearly allied to *Eriocnemis lugens*; but it differs from that bird in its considerably larger size, and in the parti-colouring of the tarsi-feathers, in which respect it assimilates to *E. Aureliæ*. The three species, indeed, viz. *E. lugens*, *Aureliæ*, and *squamata*, constitute a minute section of the genus, and all, I believe, inhabit very high mountains.

SCHISTES PERSONATUS, Gould.

Forehead, face, and throat glittering brilliant green, in the form of a mask, posterior to which is a patch of black, below this spring two lengthened tufts of violet-blue feathers, below these tufts a crescentic mark of white; crown of the head, back of the neck, back and shoulders golden-green; tail green, each feather crossed near its

apex by a broad band of steel- or bluish-black ; abdomen green ; wings purplish-brown ; bill black.

Total length $3\frac{1}{2}$ inches ; bill $\frac{7}{8}$; wing $2\frac{3}{8}$; tail $1\frac{3}{8}$.

Hab. Ecuador.

Remark.—This species is nearly allied to *Schistes Geoffroyi* ; but it is a much finer bird, the forehead and throat being covered by a mask of glittering green ; its bill is also considerably longer.

THALURANIA TSCHUDII, Gould.

Crown of the head and all the upper surface golden-green, inclining to bronzy-green on the tail-coverts ; throat beautiful green ; abdomen prussian-blue ; under tail-coverts steel-black, many of the feathers slightly fringed with white ; thighs, tarsi, and anal region white ; tail steel-black.

Total length $4\frac{1}{4}$ inches ; bill 1 ; wing $2\frac{1}{4}$; tail $1\frac{3}{4}$.

Hab. The neighbourhood of the River Ucayali, and the countries of Ecuador and Peru.

Remark.—The two species to which this bird is most nearly allied are the *T. furcata* and *T. nigrofasciata* ; but it differs from the former in having a more robust body and broader tail-feathers, and in having the abdomen prussian-blue instead of ultramarine-blue ; and from the latter in the form of the green mark on the throat, which in this bird is truncate, while in *T. nigrofasciata* it descends nearly to a point towards the centre of the abdomen. This is the species mentioned by Tschudi in his 'Fauna Peruana,' under the name of *Trochilus furcatus*,—a fact of which I am certain, as I have received a specimen from his collection direct from Neuchatel.

OREOPYRA LEUCASPIS, Gould.

Crown of the head exceedingly beautiful glittering grass-green ; back of the neck, and all the upper surface, deep grass-green, with bronzy reflexions ; throat pure white, contrasting conspicuously with the glittering grass-green of the breast ; flanks and abdomen greyish-green, with bronzy reflexions ; wings purplish-brown ; tail forked and steel-black ; thighs thickly clothed with hoary or greyish-brown feathers ; behind the eye, and extending some distance down the sides of the neck, is a stripe of pure white ; bill straight, and both mandibles of a uniform black.

Total length $4\frac{1}{8}$ inches ; bill $1\frac{5}{8}$; wing $2\frac{1}{2}$; tail $1\frac{5}{8}$.

Hab. The Volcano of Chiriqui in Costa Rica, where it was discovered by M. Warszewicz at an elevation of from 9000 to 10,000 feet.

Remark.—One solitary individual, and that badly shot about the tail, is the only example I have ever seen of this remarkable and beautiful bird—a bird which differs so much from every other member of the *Trochilidæ*, that I have been necessitated to make it the type of a new genus.